# A SYNOPSIS ON

**Library 1.0 to Library 4.0 - Information technologies, library activities and services a developmental comparative study in India**

Submitted to

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For the Degree of

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## 1. INTRODUCTION:

Change is a constant part of being a library, because "Library is a Organism" said by Dr S R Ranganathan in his fifth Law of Library Science. As a library professional we strive to be leader in service providers, in providing access to and demonstrating the use of new technologies in our workplaces.

The libraries environment in services has changed drastically. Impact of Library 1.0 to Library 4.0 technologies has been developed to help bring information together and retrieval as user needs about technological changes that are likely to impact all type of libraries in the future.

Due to rapid changes in technologies and their enthusiastic uptake by many parts of the community, libraries are in a constant state of flux when it comes to engaging with and utilising new technologies in ways that are relevant to users and key goals as organisations.

We should be aware of new and updated technology, study the future technology trends and try to improve the library services.

In this research work aims to study the development of Library 1.0 to Library 4.0 and its impact on library services. Library 1.0 is co-relate with Web 1.0, Library 2.0 is to Web 2.0, Library 3.0 is related to Web 3.0 as Library 4.0 is co-relate with Web 4.0.

A large amount of research is being done in various areas of library and information science. Library 4.0 library model can be used in different types of libraries i.e. public, special and academic libraries. It can be seen as a form of a next generation digital library.

Web 4.0 technology represents an advanced development and high-level intelligence based on web operation systems such as "Internet of Things" which will be connected through the worldwide web as library services can also be connected through the worldwide web.

Also in Web 4.0 there will be a design of services and functions, where artificial intelligence is supported, artificial intelligence can also be supported in the library and thus improve the reader's time, quality of service.

## 2. SIGNIFICANCE OF THE STUDY

1. After the completion of this study, librarian and library staff will help to identify library 4. 0 and its utility
2. librarian and library staff using this library 4. 0 study will help in performing their duties by providing up-to-date services.
3. After completion this study aware about new skills and terms related to Library 4.0.

4. This Study Library 4. 0 , will help to understand the technology characteristics/trends adoption/preference of various technologies etc.
5. The results of the present study will help in the professional development of librarians as well as library science professionals.
6. Learn how Libraries 4.0 can benefit effective service delivery in the library sector in the era of Fourth Industrial Revolution (Fourth IR).
7. You will get the information about which computer technology and skills to be required for providing the library 4 service.

## 3. OBJECTIVES OF THE STUDY

1. The Fourth Industrial Revolution has had a massive impact on societies, changing the way people live, work and communicate, so libraries need to adopt new technologies to meet the demands of library users.
2. The fourth industrial revolution is bringing about new work and development in almost all spheres of life like government, education, healthcare etc. Therefore, it is necessary to find out from the literature study whether academic libraries are ready for Library 4.0 brought about by the existence of the fourth industrial revolution.
3. Library 4.0 is well knowned an future advanced technology system, aims to study changes in library services with different features.
4. Will physical libraries adopt the characteristics of Library 4.0 for its spatial changes? The implications if accepted are to be studied.
5. To study the development of From Library 1.0 to Library 4.0 technology.
6. As Library 4.0 also includes the concepts of Social Semantic Digital Library, Linked Library and Ubiquitous Mobile Library, it is important to study how to improve library staff and their knowledge and skills.
7. To study the attitudes of librarians, library staff and readers towards Library 1.0 to Library 4.0 technology
8. To study the impact of those technologies to provide Library 1.0 to Library 4.0 services
9. Study of current state of technology of general library and special libraries in educational colleges
10. To study the role of Library 1.0 to Library 4.0 Technology in improving library services.
11. How librarian and libraries manage their digital resources and digital services.

## 4. HYPOTHESES OF STUDY

H1. This technology is easy to use, convenient and useful as it is a new updated technology

H2. Anyone can access library services anytime anywhere due to online facility

H3. This facility can use artificial intelligence to avoid human errors

H4. Due to advanced technical facilities even minimum staff can do all the work

H5. Users can perform to Self-check-in check-out library resources due to this saves time in exchange of between staff and readers

H6. With the help of instruments, reading and listening to books can be done on the go and many tasks can be done at the same time

H7. By using drone book will be delivered at users home service

H8. By using Internet and technology anyone can translate the required material from one language to any other language

## 5. THE REVIEW OF LITERATURE

This research topic is co-related with Industry 4.0 and Web 4.0 and there is a lot of literature available on this topic. Some of the key books, websites, conference proceedings and reference materials to be used for further research are mentioned below.

**"Libraries for Users services in academic libraries"** written by Luisa Alvite, and Leticia Barrionuevo. In this book author present the current status of services provided by university libraries. They have striven to explore the way in which academic libraries are adapting their traditional services and adding new ones in order to adapt to the demands of the new model of society, the Knowledge Society, and the new environment in higher education marked by globalisation and competitiveness.

**"Modern Trend In Libraries: For Beginners"** this book is compiled by Dr. R.K. Singh. In this book author focused on Automation of library activities and adoption of computers to both routine as well as non-routine activities has become almost a necessity and is being hotly discussed and debated in all professional gatherings. There are many reasons for this change. One of the major reasons to this change is the rapid developments that are taking place in information technology and the potential for new services which they bring. At the same time the demands for information by the library users are also changing. The readers are now coming with new expectations and insist for high quality service. On the other hand the range and variety of information sources that librarians handle are also changing. Apart from print material librarians now deal with online bibliographic databases, CD-ROMs, electronic journals, digital texts supplied from a number of vendors that are downloaded from Internet. Each of these format requires generic and highly specialized skills for searching, identifying, extracting and disseminating the right information to the right reader at the right time and in the right format.

The publication **"Digital Technologies and Applications"** is a Proceedings of ICDTA 21, Fez, Morocco and edited by Saad Motahir and Badre Bosoufi. In this

process, the published articles section on Internet of Things, Embedded Systems, Blockchain and Security will be studied. Also Blockchain, IOT, 5G technology, Internet of Things are the latest technologies to be studied by combining them

**"The Semantic Web – ISWC 2020"** is a Proceedings of 19th International Semantic Web Conference Athens, Greece, November 2–6, 2020 Proceedings, Part I & Part II which is edited by Jeff Z. Pan, Valentina Tamma and Claudia d'Amato. Here I would be study on article "Enhancing Online Knowledge Graph Population with Semantic Knowledge" written by D`elia Fern`andez-a˜nellas1,2(B), Joan Marco Rimmek1, Joan Espadaler1, by Knowledge Graphs (KG) are becoming essential to organize, represent and store the world's knowledge, but they still rely heavily on humanly-curated structured data. Information Extraction (IE) tasks, like disambiguating entities and relations from unstructured text, are key to automate KG population. However, Natural Language Processing (NLP) methods alone can not guarantee the validity of the facts extracted and may introduce erroneous information into the KG.

**Web Engineering is a proceedings of 21st International Conference**, ICWE 2021, Biarritz, France, May 18–21, 2021 edited by Marco Brambilla, Richard Chbeir, Flavius Frasincar, Ioana Manolescu (Eds.). In this proceedings I chosen the article on Web Big Data and Data Analytics this contains and Web Mining and Knowledge Extraction. In this topic authors focued on Data Analytics and Web mining.

**"Imagining Library 4.0: Creating a Model for Future Libraries"** this technical paper would be referred from The Journal of Academic Librarianship 41 (2015) 786–797. This technical paper covered information about the library 4.0 and clear all the suggest a Library 4.0 model based on the concepts of Library 4.0 discussed in the literature as the future of library service. The concepts and model of Library 4.0 can be adapted to fit every different kind of library.

The major technology trends are Blockchain, Connected Toys, Data Everywhere, Drones, Facial Recognition, Haptic Technology, Robots, Unplugged, Virtual Reality and Voice Control which details literature available on **below websites:**

1. American Library Association (https://www.ala.org/tools/future/trends)

   On this page compile the information on Future of Libraries works to identify trends relevant to libraries and librarianship.

2. National Digital Library

   It is National Digital Library of India (NDLI) virtual repository of learning resources which is not just a repository with search/ browse facilities but provides a host of services for the learner community.

## 6. RESEARCH METHODOLOGY

The present study will be carried out with Questionnaire, Interview and descriptive research method.

**Tool for data collection:**

Face to Face Interview of library professionals & Questionnaires.

## 7. SCOPE AND LIMITATIONS OF THE STUDY

The present research work is related to developmental comparative study from Library 1.0 to Library 4.0 and its impact on library. It deals with public libraries, special libraries and academic libraries. Here I will take top 15 no's of NIRF 2022 overall ranking academic institutes in India which are below:

1. Indian Institute of Technology Madras
2. Indian Institute of Science, Bengaluru
3. Indian Institute of Technology, Bombay
4. Indian Institute of Technology, Delhi
5. Indian Institute of Technology Kanpur
6. Indian Institute of Technology, Kharagpur
7. Indian Institute of Technology, Roorkee
8. Indian Institute of Technology Guwahati
9. All India Institute of Medical Sciences, Delhi
10. Jawaharlal Nehru University, New Delhi
11. Savitribai Phule Pune University
12. Indian Institute of Science Education & Research, Pune
13. Homi Bhabha National Institute, Mumbai
14. Symbiosis International, Pune
15. Dr. D. Y. Patil Vidyapeeth, Pune

Historical famous 15 public libraries in India for the study.

1. The National Library of India, Kolkata
2. Asiatic Society of Mumbai Library
3. Anna Centenary Library, Chennai
4. Connemara Public Library, Chennai
5. Delhi Public Library, Delhi
6. Nehru Memorial Museum and Library, New Delhi
7. Raja Ram Mohan Roy Library Foundation, Kolkata
8. David Sassoon Library, Mumbai
9. Saraswathi Mahal Library, Tamilnadu
10. Parliament Library, Delhi
11. State Central Library Hyderabad
12. Rampur Raza Library
13. Khuda Baksh Oriental Library, Bihar
14. Sayaji Rao Gaekwad Library Varanasi
15. Maualana Azad Library, Aligarh

This study is focus on how to be Library 1.0 to Library 4.0 evolved in institutes, libraries, its usage, features, technology and tools required to use it.

## 8. CHAPTER SCHEME:

Chapter 1. Introduction.

Chapter 2. Review of literature

Chapter 3. Library 1.0 to Library 4.0

- 3.1 Library 1.0
- 3.2 Library 2.0
- 3.3 Library 3.0
- 3.4 Library 4.0

Chapter 4. Comparative Study

Chapter 5. SWOT Analysis

Chapter 6. Data Collection and Data Analysis

Chapter 7. Conclusion/Findings, suggestion / recommendations possible further study.

Appendix: Bibliography & Questionnaire



## WORK OF PLAN:-

| Sl | Study Plan | Description |
|---|---|---|
| **1** | October 2022 to January 2022 | Collection of related literature data |
| **2** | February 2023 to June 2023 | Comparative data analysis |
| **3** | July 2023 to December 2023 | Analysis and interpretation of collected data |
| **4** | January 2024 to March 2024 | Thesis Writing |
| **5** | April 2022 to June 2024 | Submission |

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